

*Coming to Terms: An Anthology of Poetry Concerning Science and Nature*

**An Honors Thesis (HONR 299X)**

**by**

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## **Abstract**

Science and nature permeate every aspect of our lives, regardless of our knowledge or acceptance. The relationship found between humanity and these forces is one which has been debated and philosophized for millennia. A series of poems and preceding essay describe my own personal journey through the realities and pitfalls of an idealized relationship with science. Connections are drawn between mankind and nature in various aspects, from the physical to the emotional, including connections both between mankind and nature as a whole, between mankind and specific scientific concerns, and between individuals.

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## Process Analysis Statement

Over the course of this semester I realized that my relationship with science and nature was skewed at best. I wanted to do a project which explored this realization, and the juxtaposition I found between the idea of science which is advertised to the general public and the reality of it. I had already begun another thesis project which involved researching Banchiobdellid symbionts of crayfish, and I wanted to discuss the disconnect between how I felt about the work I was doing and what I thought I would feel in the years leading up to those moments. Overall, the purpose of this project was to highlight the drastic differences between expectations and reality when considering science and one's relationship to nature.

I wanted to use this project to better prepare myself to communicate thoughtfully with the non-scientific community. I wanted to bridge the gap between individuals like myself who have seen the less advertised aspects of science, and those individuals who have yet to. I wanted to use my own experiences throughout my life to display the journey many of us have to take in order to find our place in nature, and solidify our attitudes about science. To do this, I simply started writing. I thought back to my first real scientific influences, and how that shaped my world view into something which placed science at the forefront without really understanding the intricacies of a career in science.

I spent many years idealizing science and nature, and found few moments of real connection. Instead of analyzing and being a part of each moment I was in, I simply brushed them off in favor of looking forward to the next one.

These poems are a reflection of many of those moments, some of which were moments of personal connection, and others which were moments of broader understanding. I suppose I used poetry because of the simplicity of it. As a science major particularly, I have developed almost a *need* to be as specific and concise as possible when communicating, and I find that poetry can be one of the most effective methods of doing so. It is also one of the most versatile writing mediums, which lends itself well to topics such as this that incite varied emotional and logical responses. My hope while writing this was that perhaps I would be able to aid in the journey of other individuals, presenting them with a variety of my own experiences in order to allow awareness of the many realities of science and nature, and what they mean to humanity.



## Forward

I spent the first 9 years of my life being raised in a cul-de-sac in a suburb of Ohio. I would play outside in the grass or mud with my siblings and neighbors, and once my dad found a large garter snake in the yard. Mostly, though, I either didn't notice or didn't care about the nature around me. I was far too mesmerized by the wild plains of Africa, or the calls of the jungle, or the mysteries of the deep. I, like many, absolutely adored "Animal Planet" and "Zaboomafoo" and "Planet Earth". I loved the Crocodile Hunter, and wanted so badly to be able to experience the adventures he went on. I begged my parents for every magazine subscription, and to send money to every conservation effort. When I finally got my hands on my very first copy of "Zoobooks", I knew that was it for me. When I grew up, I wanted to be the best scientist ever. I wanted desperately to live the glamorous life of a nature biologist, and the more I learned, the more I fell in love with the deep sea. It seemed to hold so many possibilities; I told people for years to remember me, because one day I would re-discover a dinosaur living at the bottom of the ocean. Science was exciting, and always new, and always fun.

I maintained that attitude throughout my primary school years, further realizing that I not only wanted science to influence my own life, but the lives of others. I wanted desperately to teach, to pull others along this exciting path with me. I wanted everyone to realize how amazing biology could be, and be aware of the world around them; to be aware that on the same Earth in which there is grass and asphalt, there are also dense jungles and untouched caves. There are people not like us, who have never even thought of cars or guns or television. There are plants the leaves of which respond like nerves to the touch. There are insects which build and burrow and rule in numbers humanity could never hope to reach. There are animals and chemicals and forces which we cannot yet understand, but someday might. Those possibilities drew me in, and I spent all of the following years of my life honing my interests and tuning my focus.

By the time I reached high school I knew my path. I was to be a professor of marine biology, studying the deep ocean. I took every advanced placement science course I could. I loved chemistry, biology, and environmental science. Ecology was absolutely fascinating; for the first time, I could name and diagram exactly the way in which the world's organisms were connected in any ecosystem. Population dynamics allowed me to finally place some of that focus on humans, and I could draw connections between different species and their reproductive strategies. Humans and elephants are K-selected species, while rabbits and mice are r-selected. I learned about evolution, and how each of the species on this planet came to be, and the world began making more sense. I knew why I felt this connection to biology, and why I felt so at home when considering these other species and making these connections. We all come from the same stuff, the same four nucleotides, the same origin. Of course I felt at home there; I was.

But with these new pieces of knowledge and understanding, I also began to notice something else. While I was growing and learning to love and connect science with the world, others were not necessarily doing the same. My parents, many other family members, and even



fellow students would tell me evolution was false. I never believed them, because it was science! Science had never led me astray before, and even they had always accepted other facts and principles science had supplied, so why not this one? I began to feel there was a disconnect between scientists and the general populace. I had an argument with my grandfather about clear-cutting practices, because I was taught that it was harmful for the environment and disrupted ecosystems. He would only say that he had spent many years clear-cutting for a logging company, and it never did any harm—the trees would grow back eventually. I couldn't understand how someone with as many years under his belt as him, could fail to grasp the concept of change; someone who had seen the world shift so drastically, someone who had lived a childhood without even electricity!

I continued to hold science in the same regard in which I held it as a child. Scientists were the cream of the crop, they were the pinnacle of intelligence, and if I could just become one, I would be amazing like that too. I developed a hard-shelled stance against individuals not accepting of scientific fact, and clung to the image of science which had been portrayed to me nearly constantly since a young age. I watched documentaries, read books, and researched my favourite creatures. I was happy in the knowledge that I would someday be the adventurer and scholar and teacher I had always wanted to be, and that I just needed a few more years to get there. The growing gap I saw between science and the general populace only served to increase that same feeling of awe and prestige I felt as a child.

I was accepted into Ball State University as part of the STEM program, to study aquatic biology. I toyed with the idea of including molecular or microbiology, but after my first semester, I was quite sure that lab work was absolutely not for me. Besides, there was nothing glamorous or particularly exciting about studying bacterium on a petri dish. I took honors courses, and French courses, and even a theatre history class. The only classes that felt real and important, however, were the science and lab courses I took. For the first time, I was doing “real” science. I was performing experiments, and writing lab reports, and doing statistical analysis. I didn't care that the classes were boring and sometimes difficult; I figured that eventually, I would be able to take the classes that would really matter, and remind me why I loved science in the first place. I would tune out my doubts and focus on what I thought science was supposed to be, and how scientists were supposed to act.

Global warming became such a hot button issue, that I could no longer ignore the media or family members who would scoff upon hearing about it. I knew the facts. I trusted my professors, but above that I trusted the scientific process. I knew enough to know that there was no reasonable room for doubt. But the floodgates had been opened, and I could tell that many people were beginning to doubt science more and more. They doubted the science they didn't understand while taking for granted the science that has made their lives so much easier. They sang praises for breast cancer research and faster internet speeds and missions to Mars, while plugging their ears about climate change and vaccinations. The whole idea that “my ignorance is



just as good as your knowledge” brought the gap I had been ignoring into full focus, and it was wider than ever.

While all of this was happening, I began my first thesis project. I was studying Branchiobdellid annelids, symbionts of crayfish in Central Indiana ecosystems. I wasn’t particularly excited about it but it was suggested by my professor, and since I couldn’t think of a better project to do, I dove right in. Almost immediately, I began struggling. I kept telling myself I just didn’t have the time, but that was only true part of the time. I would find myself realizing over and over that hey, I definitely needed to do some research for this, but something else was always more important. Sure it was science, but it didn’t feel like science that *mattered*. It wasn’t the science I had always thought I would be doing by this point, and especially when compared to the issues happening in the world around me, it felt completely pointless. There were people surrounding me who would vote a man into office who insisted that climate change was a hoax perpetrated by the Chinese. People were taking the word of a has-been celebrity over the entire medical community, and as a result we saw a rise in diseases that were previously wiped out in this country. I couldn’t bring myself to care one iota about crayfish worms.

I was expecting my thesis to make me finally feel that physical connection to the science of my childhood. I knew it wasn’t going to be as glamorous or exciting as diving into the twilight zone of the ocean to find angler fish, but I thought it would make me feel like I was making progress. I was expecting to feel like part of the community, since I would actually be participating and not just observing. But I spent my time by myself. I spoke with my advisor twice: once to get the project started and to get a lab key, and once over email where he asked for an update. I couldn’t figure out why I didn’t feel like I was supposed to.

A few weeks before my thesis was due, I had an absolute breakdown. I just couldn’t figure out why I was feeling so let down by both the world and myself. Science had always been a constant in my life, and I didn’t know why it wasn’t turning out the way I was always shown it would. Bill Nye told us that science was exciting, and always new, and fun. But it sure didn’t feel that way. I felt like I had been doing the same thing for years just waiting for “the good part” but graduation was fast approaching and I still hadn’t found it. I found myself stuck in a weird place I had never been before. For the first time in my life, I was uncertain about what I was going to be doing in the next few years. Even just a few months before this point, I was positive that I was going to graduate and get a job doing something awesome, just like Steve Irwin. But based on the way science was happening in both the world around me and within my own life, I was never going to find that same vision I had as a child.

I then had two epiphanies in rapid succession. The first being simple and yet, to me, profound: I absolutely hate research. I. Hate. It. When I first came to University, I thought it was just lab work that I hated, or just cell biology. No, I hated scientific research of all kinds. I hated collecting in the field beyond novelty trips, I hated classifying organisms, I hated describing lab protocol... In short, I allowed myself to accept what I had known since the beginning, but had

told myself was only a fleeting annoyance. The second epiphany was less explosive to me though, I think, even more important. I realized that science had never been what I thought it was. Science had always been advertised to me as a great adventure, with exciting new discoveries being made constantly, with every victory being a “eureka” moment with fanfare and celebration. Science is, in reality, much more subtle than that. Of all the professions, science requires the most patience and resilience.

Factually, I knew all of this. I knew that science was a process, and I knew that most of the time it was far from exciting. I knew that I wouldn’t jump right into being the next great explorer of the deep, and I knew that there was a distinct possibility that I may never actually make any discoveries. All of this I knew, and yet I felt deflated. The advertisement is always more appealing than the actual product; this is true for both shampoo and science. Knowing this, however, doesn’t mean that there is no truth to the advertisement from time to time. Science is still amazing. Steve Irwin still existed, and lived and breathed science and exploration. That doesn’t mean someone else can’t do that as well. But that is only one reality of science. It is just as important that we know to learn about and respect its many other faces as well. Animal Planet showed us “sexy science”. Science which grips at our hearts and minds and makes us feel a deep sense of curiosity and wonder. The science that is accepted by the masses, and encouraged in the minds of our youth.

And science is certainly all of that, but it is also so much more. Science is doing the same boring measurement over and over. It is painstakingly combing over the carapace of a crayfish for tiny white worms. But most importantly, science is a connection not only with other scientists but with the general population.

Following is a series of poems documenting not only my connection with nature, but the perceived connection between nature and mankind in general. It is a collection which I have written in an attempt to reconcile my place in the world, and to see in words and phrases the feelings which I have struggled with as both a scientist and as an individual. It is a love and hate anthology in which I attempt to be honest with myself in ways I spent years avoiding.

My hope is that you may also find your connection in these pages, reader, and that if you have found yourself in a similar position, you will also be able to find the answers you are looking for.



## *Story*

The wind forces me to see  
The difference a few words  
Can make on a page.  
Interesting  
How different the lines become.  
Playing princess in the sun  
Splashing into the realm  
Of make-believe.  
Swords and dragons  
Sorcery and epic fairytales.  
The leaves rustle in anticipation  
Of the winds of change.  
An amazing beginning  
To a never-ending tale.  
The story waits only  
For someone to realize  
It can be told.

## *Beautiful Terror*

The bioluminescent glow  
Of creatures in the deep.  
The mysterious vastness  
Holds discoveries yet to be made.  
Perfectly clear until disturbed,  
Full of utterly graceful life.  
Life-threatening beauty—  
A new danger at every depth.  
Yet it calls to you  
With a Siren's song  
That cannot be denied.  
You feel the pull of the waves  
And drift ever deeper.  
The frightening unknown  
Is no longer just a terror  
But becomes an obsession.  
The will of the ocean  
Becomes your master.



## *A Simple Truth*

The thrumming of a heart  
Becomes a beating cadence.  
Petals press softly against goodbye.  
Thunderclouds speed across the sky  
As if in a dream.  
Outside looking in  
At the comforts of togetherness;  
Loneliness begs company.  
Beds of ancient rock  
Tremble in anticipation.  
There is a change  
In the hearts of the lost.  
All but the yet undiscovered  
Will be forgotten in the end.  
The mind can be a terrible thing.  
Turn against the masters  
In remembrance of a once known truth.  
It can be known again.  
Simple and vast.  
Forever is a very long time.

## *The End*

In the beginning  
There was only me.  
Only me and my thoughts.  
And I thought of life  
So there was life.  
There was life  
And it was beautiful.  
Beautiful and pure.  
Clean.  
There was land and sea and sky,  
There were animals,  
And then there was man.  
From man there was woman,  
And there the journey began.  
I watched as man struggled.  
Struggled with faith,  
And struggled with life.  
I have stood beside each of them,  
And still there seems no reprieve.  
They stand on their own,  
Faithless,  
And wonder why their lives  
Have no life.  
Perhaps one day  
They will understand  
Why things had to end this way.

## *The Beginning*

In the end  
There will be only me.  
I will run rampant.  
I destroy life.  
Now there will be none.  
There will be death  
And it will be beautiful.  
Beautiful and sonorous.  
Delicious.  
Death in the land and sea and sky,  
No more animals.  
There will be no man,  
There will be no woman.  
My true journey shall begin.  
I fed oxygen to the flame.  
I choked their faith,  
And smothered their lives.  
And now I will stand beside each of them,  
And there will be no reprieve.  
They stood on their own,  
Faithless,  
And now they see why their lives  
Are in my hands.  
Perhaps one day  
They will understand  
How they led me to my new beginning.



## *I Grew Up Here*

Delaware  
Is too far into my memory  
To recall.  
Ohio  
Is full.  
A little white house  
And a dorky little boy  
Across the street.  
Friends.  
There was also  
A dip in the floor.  
There were Christmases  
And a porcelain Geisha  
doll.  
White castle  
Nail polish  
Boxes of art supplies  
And a small pool  
In which I fished  
For whales.  
A new house  
In a cul-de-sac  
Brought new friends.  
The ditch  
Would fill with rain  
And then snow

And sleds.  
We made potions  
With weeds and water.  
Witches  
With a very  
Messy  
Room.  
Bikes  
Pokémon cards  
And Polly Pockets.  
Bath time was awesome.  
Fairies are everywhere,  
Anna-Beth told me so.  
Maybe they will follow me  
To Washington.  
There is a lot of dirt  
Not as many trees  
As I thought  
But it's great for  
Mud.  
Lots of little  
Hidey-holes.  
I met my beginning  
In trombone.  
Books

And books  
And books were friends.  
Dry heat,  
Very little rain  
Or snow—  
No sleds.  
Goat heads?  
Ouch.  
Then, zoom zoom—  
Indiana.  
More band;  
Band is good  
Boys are dumb  
But ooo—cute.  
It's green again.  
Real seasons are nice.  
So much snow  
I have to watch out for  
Chris  
He's so short.  
While I am here  
I realize  
The patterns  
In my memory.  
Nature.

## *Teilhard's Phenomenon*

From the infinite  
To the infinitesimal;  
From the atom  
To the cosmos  
Of an unlimited  
Pool we are born;  
Are wrapped—  
Engulfed—  
In an all-encompassing  
Consciousness.  
Life can be traced  
Re-winded  
Broken  
Down into the same stuff;  
The stuff of rocks  
And plants  
And dirt  
And people.  
Development;  
Evolution?  
Is guided

Lead  
Leading toward  
The Ultimate.  
“The Omega”  
The final  
Stage.  
Science  
Turns our eyes  
From ourselves  
But—  
As man searches  
Searches farther  
Into the cosmos:  
How can he  
Possibly  
Comprehend  
What he might find,  
If he can't  
Even  
Comprehend  
Himself?



## *Flowers*

Fall

Smells like memories

Once bitter.

But the pages kept turning

And suddenly,

Flowers were pressed

And hidden away

And made everything sweet.

It provides hope

They maybe,

Perhaps,

All bitter things

Will turn into flowers

And fall.

## *To Borrow from Tomorrow*

When the world is burning  
And we can barely move  
We will look to today.  
When there are no more  
Tomorrows  
To procrastinate to  
We will bemoan our follies.  
We will miss food  
When we have to eat our money  
And we will miss air  
When there is none left to breathe.  
We are allowing our future  
To be decided for us  
By people who will not have to live  
To see the consequences  
Of their greed.  
Our children  
Will never know the feel  
Of soft sand and clear waters.  
They will never know  
Clean skies and fresh flowers.  
But it's okay  
Because today  
Dirty money spends well.